

REMARKS

Claims 1, 4-6, 8, 9, 14-26, 28-30, 32, and 66 are pending. All claims stand rejected.

Claims 1, 4, 5, 8, 16, 19, and 66 have been amended. Claims 67-77 are new. Some amendments were made to correct spelling and antecedent basis issues. Support for the amendments may be found throughout the specification, in the original claims, and at pages 19-24. No new matter has been added by these amendments.

Specification

Please amend the specification, as shown above, at page 12 to correct typographical errors in the measurement units.

§103 Rejections

All claims have been rejected under 35 U.S.C. §103 over Moulton et al., U.S. Patent No. 5,441,830 ("Moulton").

Moulton discusses methods for enhancing the adhesion of composite electrodes onto conductive (plastic) foils (Abstract). The Examiner appears to be combining Moulton's discussion related to the adhesive with the composite electrodes referenced in Moulton. In considering Moulton's teachings, it is important to remember that an electrically or electronically conducting layer, whether adhesive or not, cannot support a faradaic reaction across its interface with another electrically or electronically conducting surface (such as plastic foil), because such an interface cannot support the potential gradient necessary for a faradaic reaction. All of the teachings, examples, and discussion in Moulton deal with interfaces between electronically conducting layers which cannot support faradaic reactions. For example, Moulton clearly points out that "since this adhesion-layer is electrically conducting, the current generated by the electrochemical cell can pass through it and be collected by the conductive plastic foil acting as the current collector." (col. 14, lines 60-63).

In contrast, the current application describes a composition and method for producing adhesive bonds that can be controllably weakened on demand to facilitate disassembly of

adhesively bonded structures. The bonds may be weakened and released by a faradaic reaction at the interface caused by passing voltage across the bondline.

1. Composite Electrodes. Moulton discusses composite electrodes formed from "compatible" electrode materials, "conductive material, an electrolytic solvent, an alkali salt, and a solid matrix forming polymer." (col. 8, lines 15-17). The resulting structures are electronic conductors and cannot, indeed must not, support faradaic reactions at the current collector/composite electrode interface. Faradaic reactions occur only at the electrode particle/electrolyte interface and nowhere else. As defined in the current specification at page 4, line 18-19, a faradaic reaction means an electrochemical reaction in which a material is oxidized or reduced.

According to Moulton, the adhesion of composite electrodes to current collectors (metal or conductive plastic foils) is poor. Hence the need for Moulton to insert an electronically conductive adhesion layer between the composite electrode and the current collector.

2. Adhesive. Moulton improves the adhesion by "placing a layer of an electrically-conducting adhesion-promoter onto the surface of the current collector." (col. 2, lines 19-26). This adhesion promoter is an electronic conductor and cannot, indeed must not, support a faradaic reaction at the current collector/adhesive layer interface. Rather, the electric flow passes through the adhesive/adhesion promoter and is collected by the current collector.

It is clear from a reading of Moulton and the above explanation that Moulton does not teach, disclose, or suggest the current invention and claims of the present application. Therefore, applicant requests all rejections be withdrawn.

Applicant requests entry of the amendments and reconsideration of the claims in light of the amendments and arguments above. The Examiner is invited to contact the undersigned if questions remain regarding the above, or if it would assist in advancing prosecution.


Applicant : Michael D. Gilbert
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Enclosed is a check for \$510 for the three month extension of time fee. No additional claim fees are believed to be due. With the amendments and addition, there will be 35 claims, including 3 independent claims, and the original application included 59 claims. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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Gary L. Quick
Reg. No. 55,553

Fish & Richardson P.C.
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402
Telephone: (612) 335-5070
Facsimile: (612) 288-9696